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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CLARK, MAXWELL A	
ART UNIT	**PAPER NUMBER**
2416	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/565,941	ALLASIA ET AL.	
	Examiner	Art Unit	
	MAXWELL A. CLARK	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 32 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 32 recites "A computer program product capable of being loaded in the memory of at least one computer and including software code portions;" A computer program per se is non-statutory subject matter.

Claim Rejections - 35 USC § 112

3. Claims 20 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

invention. The phrase "non-coextensive paths" is not clearly defined in either the claims or specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 17-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ong et al. (US 7,130,263 B1) in view of Shiragaki et al. (US 2004/0057375 A1).

Regarding claim 17, Ong discloses providing extra traffic paths in a communication network comprising at least two protection channels associated to respective transmission channels (col. 4, lines 45-46, the channels on each sub-span, extra traffic paths, include working channels and protecting channels; col. 7, lines 26-28, Figs. 3B 3E illustrate the concatenation configuration of each of both the working and protecting channels of both of the sub-spans of spans 340, 350, 360, and 370, the at least two protection channels associated to respective transmission channels), each of

said at least two protection channels admitting an active state for carrying, in the presence of a failure in said associated transmission channel, traffic to be carried by the associated transmission channel (col. 8, lines 6-11, a protection switch occurs due to a failure of a given span, i.e. active state, the connection configuration(s) of the protecting channels of the non-failing spans are reprogrammed to match the connection configuration(s) of the working channels programmed on the failed span, i.e. in the presence of a failure in said associated transmission channel, traffic to be carried by the associated transmission channel) and a stand-by state, wherein the protection channel is adapted to carry extra traffic (col. 2, lines 17-21, working traffic 110 travels on a circuit provisioned on the working channels 1 3, and therefore that circuit has a concatenation size of 3 channels ("3C"); the extra traffic 120 travels on a circuit provisioned on the protecting channels 7-9), comprising a step of running said at least two protection channels in a sub-network connection protection scheme (fig. 1a, col. 2, lines 17-21, working traffic 110 travels on a circuit provisioned on the working channels 1-3, and therefore that circuit has a concatenation size of 3 channels ("3C"); the extra traffic 120 travels on a circuit provisioned on the protecting channels 7-9).

Regarding claim 18, Ong discloses associating to each of said at least two protection channels corresponding input and output digital cross connects (col. 1, line 65-67); and running said sub-network connection protection scheme at said input and output digital cross connects (col. 2, lines 1-11; col. 1 line 23-35, SONET/SDH, which has all the capabilities of add drop multiplexers (ADMs) and also include cross-connect functionality).

Regarding claim 19, Ong discloses associating to each of said at least two protection channels corresponding input and output add-drop multiplexers; and running said sub-network connection protection scheme at said input and output add-drop multiplexers (col. 1 line 23-35, SONET/SDH, which has all the capabilities of add drop multiplexers (ADMs) and also include cross-connect functionality).

Regarding claim 20, Ong discloses providing in said communication network at least one ring structure including non-coextensive paths and the step of associating said at least two protecting channels to respective non-coextensive paths in said ring (Table 1; col. 9 lines 58-67 through col. 10, lines 1-18, the various ports in the ring of FIG. 5 are reprogrammed responsive to a protection switch due to a failure on any one of the spans A D. In particular, the top row of Table 1 shows the protecting channels on the receiving side of each port, while the leftmost row lists the failure of different spans. The entries within the table designate the sub-span from which the connection configuration of the working channels will be selected. Thus, each column identifies which working channel connection configuration will be selected for reprogramming the protecting channels on the receiving side of each port responsive to a failure of each span of the ring).

Regarding claim 25, Ong discloses at least two protection channels associated to respective transmission channels (col. 4, lines 45-46, the channels on each sub-span, extra traffic paths, include working channels and protecting channels; col. 7, lines 26-28, Figs. 3B 3E illustrate the concatenation configuration of each of both the working and protecting channels of both of the sub-spans of spans 340, 350, 360, and 370, the at

least two protection channels associated to respective transmission channels), each of said at least two protection channels admitting an active state for carrying, in the presence of a failure in said associated transmission channel, traffic to be carried by the associated transmission channel (col. 8, lines 6-11, a protection switch occurs due to a failure of a given span, i.e. active state, the connection configuration(s) of the protecting channels of the non-failing spans are reprogrammed to match the connection configuration(s) of the working channels programmed on the failed span, i.e. in the presence of a failure in said associated transmission channel, traffic to be carried by the associated transmission channel) and a stand-by state, wherein the protection channel is adapted to carry extra traffic (col. 2, lines 17-21, working traffic 110 travels on a circuit provisioned on the working channels 1 3, and therefore that circuit has a concatenation size of 3 channels ("3C"); the extra traffic 120 travels on a circuit provisioned on the protecting channels 7-9), said at least two protection channels jointly defining a sub-network connection protection scheme (fig. 1a, col. 2, lines 17-21, working traffic 110 travels on a circuit provisioned on the working channels 1-3, and therefore that circuit has a concatenation size of 3 channels ("3C"); the extra traffic 120 travels on a circuit provisioned on the protecting channels 7-9).

Regarding claim 26, Ong discloses input and output digital cross connects associated to each of said at least two protection channels and wherein said input and output digital cross connects jointly define said sub-network connection protection scheme (col. 2, lines 1-11; col. 1 line 23-35, SONET/SDH, which has all the capabilities of add drop multiplexers (ADMs) and also include cross-connect functionality).

Regarding claim 27, Ong discloses input and output add-drop multiplexers associated to each of said at least two protection channels and wherein said input and output add-drop multiplexers jointly define said sub-network connection protection scheme (col. 1 line 23-35, SONET/SDH, which has all the capabilities of add drop multiplexers (ADMs) and also include cross-connect functionality).

Regarding claim 28, Ong discloses at least one ring structure including non-coextensive paths and wherein said at least two protecting channels are associated to respective non-coextensive paths in said ring (Table 1; col. 9 lines 58-67 through col. 10, lines 1-18, the various ports in the ring of FIG. 5 are reprogrammed responsive to a protection switch due to a failure on any one of the spans A D. In particular, the top row of Table 1 shows the protecting channels on the receiving side of each port, while the leftmost row lists the failure of different spans. The entries within the table designate the sub-span from which the connection configuration of the working channels will be selected. Thus, each column identifies which working channel connection configuration will be selected for reprogramming the protecting channels on the receiving side of each port responsive to a failure of each span of the ring).

Regarding claim 32, Ong discloses a computer program product capable of being loaded in the memory of at least one computer and including software code portions (fig. 6; col. 11, lines 15-32, the machine-readable media 608 includes data and code for operating one or more rings. Specifically, the machine-readable media 608 includes a network management system interface 610. The interface 610 allows commands to be

received from and data to be transmitted to a location external to the network element, a terminal connected to the network element).

Ong does not expressly disclose the following features: regarding claim 17 whereby one of said at least two protection channels in said stand-by state is adapted to ensure recovery of extra traffic carried by the other of said at least two protection channels while one of the following conditions is met: said other of said at least two protection channels is switched to said active state, and said other of said at least two protection channels is subject to failure; regarding claim 21, providing in said communication network a plurality of ring structures and the step of associating said at least two protection channels to two respective different rings of said plurality of rings; regarding claim 22, selecting said two different rings as rings belonging to the same class of rings; regarding claim 23, selecting said two different rings as rings belonging to different classes of rings; regarding claim 24, providing non-preemptible unprotected traffic carried on non-preemptible channels in said network as well as non-preemptible channels protected by a sub-network connection protection scheme, wherein said extra traffic is ensured an intermediate level of availability between the levels of protection provided by said non-preemptible channels and by said non-preemptible channels protected by a sub-network connection protection scheme; regarding claim 25 whereby one of said at least two protection channels in said stand-by state is adapted to ensure recovery of extra traffic carried by the other of said at least two protection channels while one of the following conditions is met: said other of said at least two protection channels is switched to said active state, and said other of said at least two protection

channels is subject to failure; regarding claim 29, a plurality of ring structures and wherein said at least two protection channels are associated to two respective different rings of said plurality of rings; regarding claim 30, said two different rings belong to the same class; regarding claim 31, said two different rings belong to different ring classes.

Shiragaki discloses a ring network for sharing protection resource by working communication paths among various devices comprising the following features: regarding claim 17 whereby one of said at least two protection channels in said stand-by state is adapted to ensure recovery of extra traffic carried by the other of said at least two protection channels while one of the following conditions is met: said other of said at least two protection channels is switched to said active state, and said other of said at least two protection channels is subject to failure (fig. 11a; fig. 11b; ¶0084, low priority signals, or extra traffic are carried by protection rings 102 and 104. FIG. 11A shows one example of such a four-ring topology network in which extra traffic is carried on an extra-traffic path 1101 on ring 104 between nodes 106 and 107 (shorter side of a ring) and on a extra-traffic paths 1102,1103 and 1104 on ring 102 between these nodes (longer side of the ring) as indicated by thick solid lines; ¶0086, the shorter side of a ring between nodes 106 and 107 has a smaller number of extra-traffic paths than its longer side. First the extra-traffic path is cleared on the shorter side of a ring when a working path 11 between nodes 106 and 107 fails. Extra-traffic paths on the long side of the ring are cleared only if a failure also occurs on a protection path 14 or all links between nodes 106 and 107 as shown in FIG. 11B); regarding claim 21, providing in said communication network a plurality of ring structures and the step of associating said at

least two protection channels to two respective different rings of said plurality of rings (¶0064, the two-fiber ring network is shown schematically in FIG. 5. Each of the working and protection rings 101 and 102 is identically assigned four wavelengths used to establish working paths and protection paths. The working paths in the ring 101 are used to carry optical signals in the clockwise direction and those in the ring 102 are used to carry optical signals in the counterclockwise direction. Thus, if the two-ring topology network has two nodes A and B as illustrated in FIG. 5, two working paths and two protection paths can be established between nodes A and B in each of the rings 101 and 102. If wavelength 1 is used for communication between nodes A and B, they use rings 101 and 102 respectively for their normal transmission); regarding claim 22, selecting said two different rings as rings belonging to the same class of rings (¶0084, low priority signals, or extra traffic are carried by protection rings 102 and 104); regarding claim 23, selecting said two different rings as rings belonging to different classes of rings; (¶0086, the shorter side of a ring between nodes 106 and 107 has a smaller number of extra-traffic paths than its longer side and in caste of failure the to first clear the extra-traffic path on the shorter side of a ring when a working path 11 between nodes 106 and 107 fails then extra-traffic paths on the long side of the ring are cleared only if a failure also occurs on a protection path 14 or all links between nodes 106 and 107 as shown in Fig. 11B); regarding claim 24, providing non-preemptible unprotected traffic carried on non-preemptible channels in said network as well as non-preemptible channels protected by a sub-network connection protection scheme (¶0058, optical paths 401 to 404 are established on the working ring 101 between

adjacent nodes in the clockwise direction of transmission. Corresponding to the working optical paths 401 to 404, protection optical paths 401' to 404' are respectively established in the counterclockwise ring 102 in such configuration that they support their counterparts in the event of a link failure. Specifically, protection path 401' extends counterclockwise from node 106 to node 105 via nodes 107 and 108, path 402' extending from node 105 to node 108 via nodes 105 and 107, path 403' extending from node 108 to 107 via nodes 105 and 106, and path 404' extending from node 107 to 106 via nodes 108 and 105), wherein said extra traffic is ensured an intermediate level of availability between the levels of protection provided by said non-preemptible channels and by said non-preemptible channels protected by a sub-network connection protection scheme (¶0059, establishment of more than two optical paths results in an optical ring topology network of high utilization efficiency wherein a wavelength resource of the protection ring is not exclusively used by the working ring. Rather, it is shared by the optical paths in the working ring); regarding claim 25 whereby one of said at least two protection channels in said stand-by state is adapted to ensure recovery of extra traffic carried by the other of said at least two protection channels while one of the following conditions is met: said other of said at least two protection channels is switched to said active state, and said other of said at least two protection channels is subject to failure (fig. 11a; fig. 11b; ¶0084, low priority signals, or extra traffic are carried by protection rings 102 and 104. FIG. 11A shows one example of such a four-ring topology network in which extra traffic is carried on an extra-traffic path 1101 on ring 104 between nodes 106 and 107 (shorter side of a ring) and on a extra-traffic paths

1102,1103 and 1104 on ring 102 between these nodes (longer side of the ring) as indicated by thick solid lines; ¶0086, the shorter side of a ring between nodes 106 and 107 has a smaller number of extra-traffic paths than its longer side. First the extra-traffic path is cleared on the shorter side of a ring when a working path 11 between nodes 106 and 107 fails. Extra-traffic paths on the long side of the ring are cleared only if a failure also occurs on a protection path 14 or all links between nodes 106 and 107 as shown in FIG. 11B); regarding claim 29, a plurality of ring structures and wherein said at least two protection channels are associated to two respective different rings of said plurality of rings (¶0064, the two-fiber ring network is shown schematically in FIG. 5. Each of the working and protection rings 101 and 102 is identically assigned four wavelengths used to establish working paths and protection paths. The working paths in the ring 101 are used to carry optical signals in the clockwise direction and those in the ring 102 are used to carry optical signals in the counterclockwise direction. Thus, if the two-ring topology network has two nodes A and B as illustrated in FIG. 5, two working paths and two protection paths can be established between nodes A and B in each of the rings 101 and 102. If wavelength 1 is used for communication between nodes A and B, they use rings 101 and 102 respectively for their normal transmission); regarding claim 30, said two different rings belong to the same class (¶0084, low priority signals, or extra traffic are carried by protection rings 102 and 104); regarding claim 31, said two different rings belong to different ring classes (¶0086, the shorter side of a ring between nodes 106 and 107 has a smaller number of extra-traffic paths than its longer side and in caste of failure the to first clear the extra-traffic path on the shorter side of a ring when

a working path 11 between nodes 106 and 107 fails then extra-traffic paths on the long side of the ring are cleared only if a failure also occurs on a protection path 14 or all links between nodes 106 and 107 as shown in Fig. 11B). It would have been obvious to one of ordinary skill in the art at the time of the instant application to modify Ong according to Shiragaki in order to provide highly efficient utilization of transmission mediums, see Shiragaki paragraph 0008.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okuno, Eriko (US 20020181392 A1), Luft, Siegfried (US 20050244158 A1), Mesh, Michael et al. (US 20040109408 A1), Okuno, Eriko (US 20020181479 A1), Li, Ming-Jun et al. (US 20010038473 A1), Okuno; Eriko (US 7307947 B2), Okuno; Eriko (US 7307946 B2), Iyer; Ravichandran et al. (US 7277631 B1), Iyer; Ravichandran et al. (US 7269346 B1), Nagatsu; Naohide et al. (US 6626590 B1), Mascolo, Vittorio (US 20040213149 A1), Dotaro, Emmanuel et al. (US 20030235412 A1), Afferton; Thomas S (US 7167444 B1), Suzuki; Hiroyuki et al. (US 6891793 B1), Fee; John A. et al. (US 6038044 A1), Knox; Lonnie A. et al. (US 5448572 A1), Lanzone, Sergio et al. (US 20040233842 A1), Miriello, Virgilio et al. (US 20040076114 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MAXWELL A. CLARK whose telephone number is (571) 270-1956. The examiner can normally be reached on Monday to Thursday 7:30A.M. through 5:00P.M. Eastern Standard Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yao B. Kwang can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 9, 2008

/Maxwell A. Clark/
Examiner, Art Unit 2416

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2416